VOL. XI. No. 5. ESTD. JAN. 1923. MAY 1933.

Health

A Journal Devoted to Healthful Living

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Published in
ENGLISH, TAMIL, TELUGU AND CANARESE.

Annual Subscription for any edition Rs. 1-8. Foreign Rs. 2. Post paid.
Editorial and Publishing Offices :—323, Thambu Chetty Street, George Town, Madras

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EDITORIAL

PUBLIC HEALTH PROBLEMS IN INDIA.

(Continued from p. 87, Vol. XI. No. 4, April '33 Issue of Health)

I. Medical Inspection of Schools.

THIS subject is now engrossing the attention of the entire civilized world and adequate steps are being taken to ensure the health of the school-going population by periodical examination and timely rectification of the defects.

In India, a careful analysis of the results of medical inspection as embodied in the Annual Report for 1930 of the Public Health Commissioner with the Government of India, has disclosed the gruesome fact that more than 50% of the school children are found to suffer from physical defects. The Report observes :

" For lack of co-ordination between the Education and Public Health Departments, the results of these health inspections have so far, unfortunately, not been sufficiently utilized. Health Officers generally have not been permitted to take any part in this important branch of public health work and no action has so far been taken on reports of medical and physical defects in pupils". If medical inspection is to be effective, there should be uniformity and standardization in the methods of inspection and co-ordination of efforts between the Educational Department and the parents on the one hand and the Educational Department and the Public Health Department on the other. According to the resolutions of the German Pediatric Association, the school medical officer must be a health officer. He must have undergone at least two years training in Pediatrics. Apart from general Pediatrics, a school medical officer should attend a course in school hygiene,

where the combating of epidemics, the psychology and psycho-pathology of children and the physiology of bodily exercise must be taught. Those appointed to the post should have an opportunity of following the progress of science by special post-graduate courses. We doubt if the school medical officers in India satisfy these requirements. With a staff which is both incompetent and inadequate and with parents, apathetic and indifferent, it is futile to expect any great improvement from this scheme.

II. School Hygiene.

The hygienic condition of the schools in India is said to be generally unsatisfactory. Here are a few observations from the Annual Report of the Public Health Commissioner with the Government of India:

Bengal:—" Of the 159 schools visited, 49 had insufficient floor-space, 11 were ill-ventilated, 36 ill-lighted, 59 had neither privies nor urinals and 60 had no play-ground."

Punjab:—" The sanitary condition of school premises was not very satisfactory ".

An ideal school must conform to the following ten commandments, which Dr. R. A. Lyster, Lecturer in Public Health and Forensic Medicine at St. Bartholomew's Hospital has enunciated recently and we are tempted to quote them here for the edification of our readers:

1. The school must be sanitary—a healthy building in good repair, with no dampness nor gross insanitary defects. Children spent their five most active and observant hours each day in the school, and cleanliness and attractiveness in their surroundings played an immense part in their physical and mental development. A building that was insanitary, damp, gloomy, badly heated and badly ventilated had a lowering effect upon the children's physique, as well as a retarding effect upon their mental development.

2. Adequate lighting, heating and ventilation. Even where a heating apparatus was installed it was not uncommon to find the building bitterly cold at 9 a. m. and far too hot at noon. It had been proved that, though artificial ventilation had been tested bacteriologically and found to give the better results, natural ventilation had been found better in practice.

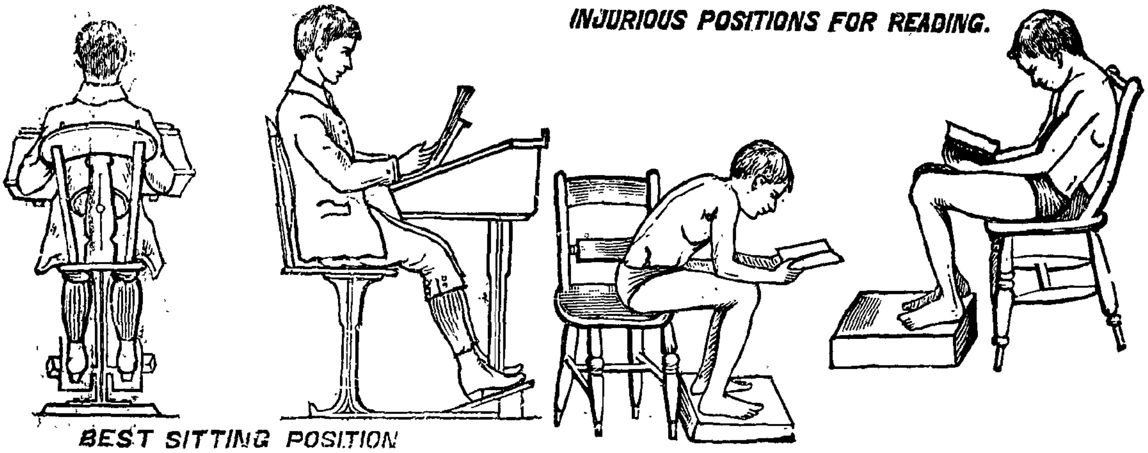
3. An adequate supply of good water. There were still schools in rural areas where there was no available water fit to drink.

4. Adequate cloak rooms, clean and spacious. Cloak rooms were often dark, dismal, unheated and badly ventilated and were thus likely to conduce to the spread of infectious diseases. Washing accommodation was often non-existent, but even where there was some provision for washing, it left much to be desired. One could look upon the provision of one clean roller towel per day as the pinnacle of achievement in this country, which was sadly behind the United States and Canada in this matter.

5. The closets may be decent, sanitary and effective, showing evidence of regular and proper supervision.

6. The school should be equipped with suitable desks. No child should be allowed to sit at a desk for a prolonged period. One hour in the best type of desk was quite sufficient, and

short periods were advisable, broken by marching exercise, games and lessons taken standing up. A child should never be allowed to sit long enough to be damaged by an unsuitable desk.



7. Floors, walls and ceilings should be reasonably clean.

8. The play-ground must be adequate for games and physical training, both as to size and as to surface.

9. Pens and pencils should not be used in common, but should be the individual property of the children. An overwhelming amount of infection was spread by the common use of pens and pencils.

10. Close supervision of drinking water and drinking vessels. Where possible, continuous spray drinking fountains should be installed, so that no drinking cup is required.

Dr. Lyster likened the head teacher to a parent with a very large family, but the teacher had the advantage of experts to turn to on every side to help with the care of the children. In the matter of school equipment and heating, cleanliness and ventilation, the head teacher had a great responsibility, and it was only by the active and continuous co-operation of the teacher with the school medical service that a high standard of health could be maintained among the elementary school children of the country.—*Mother & Child.*

We long for the day when the schools in India will come up to this ideal with, no doubt, such modifications as are suited to the soil and climate of the country and the habits of the people and we hope the Government will always press for this hygienic ideal being maintained in Indian schools.

"A cheerful disposition is not only a powerful—it is also a great health tonic. A cheerful soul can resist disease, and it is well known among physicians that there is a greater chance for recovery from exhaustive diseases by a bright, sunny soul than by a gloomy, despondent one."—H. G. G.—Practical Medicine.

MUSIC AND HEALTH.

BY

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(Continued from p. 91, Vol. XI, No. 4, April, '33, issue of 'Health'.

LEAVING the action of purely musical stimulation upon cerebral circulation, let us pass to a comparison between the circulation of the blood in the brain and in the periphery. In tracing 8 (equal elevation of cerebral and arm pulse through the incitation of the Marseillais) both the circulations were considerably increased.

In tracing 9 (increase of brain pulse; decrease of that of the arm) the incitation of a polka seems to have occasioned an increase in the cerebral circulation while it diminished that of the arm in about the same proportion. In tracing 10, there was still another combination—the circulation in the arm remained unchanged, while that of the brain increased considerably under the influence of a galop. And here we are confronted with the question whether at least these cases of cerebral hyperaemia, without simultaneous contraction of the periphery, are active expansions of the *rate sanguina*, real nervo-muscular functions. That question can be given an affirmative answer if one follows the conclusion of similar experiments that prove the existence of cerebral cells that do not cause at all the contraction or distension of the smaller arteries in other parts of the body.

Roy and Sherrington do not admit that nerves exist in the partition of the brain cells; both admit that the chemical variations that take place in the grey cells may locally provoke circulatory movements. Nevertheless, this hypothesis would destroy the active character or value of certain arguments, *pletismografice cerebrale* proving the influence excited by music.

But if every elevation or swelling of the volume of the brain is always of an hydraulic nature, if in every case it is the result of rebounds of blood waves pushed through the active constrictions of vessels into parts far from the body and escaping our experimental observations, we doubt whether we can satisfy or accustom our mind to an unexpected conclusion; that is, that a psychological agent, such as music, should spend itself upon the vascular apparatus of the arm, of the leg, and of the intestines sooner than that of the brain.

The depressing or exalting character of music does not correspond to the abasement or elevation of the pletismographic curve. The circulatory effects of musical stimuli are directly related, not subordinate, to the movements of breathing. It is not decided whether the variations in the volume of the brain are automatic nervo-muscular functions or the passive reflections of vasomotor phenomena in other regions of the body. Elevations in volume produce a cell or vasal reaction approximately proportional to the degree of increase.

Music exerts equally profound

effects on the other systems of the body. Binet and Courtier, who were among the pioneer investigators in this important field, noted the influence of musical stimuli on respiration. The reactions of a single subject were studied. In one series of experiments, isolated tones, chords and musical exercises, possessing no intellectual or emotional associations were used. These sensorial stimuli produced no respiratory modification, except an acceleration of from ·5 to 3·5 additional respirations per minute. The acceleration varied directly with the increase of the movements, and was greater for the minor mode and discordant sounds.

Musical selections, chiefly songs arousing emotional associations, according to the introspection of the subjects, varied in their influence, according to the influence the tone evoked. Sad melodies accelerated respiration by 2·6 on the average, considerably diminished the amplitude and produced irregularities in both acceleration and amplitude of respiration. Gay music, *i.e.*, military marches, produced an acceleration of 3·8 and showed less tendency to reduce the amplitude. A third class of melodies evoked complex and unclassifiable emotions. The following table is a summary of the results :—

MUSIC	ACTION ON RESPIRATION	
	Before	After
Marche Triomphale, Tannhauser	9.6	13.5
Marche de Fauste, Gounod	9.0	12.5
Marche Hongroise, Berlioz	11.0	14.5
L'Epee Chant, Wagner	9.5	14.0
La chavauchee, Wagner	9.0	14.0
Printemps(chant), Wagner	9.5	13.0
La Rencontre, Faust	10.5	13.0
Lasise moi contemplez ton visage	11.0	12.0

The evaluation of musical stimuli upon muscular activity was undertaken several years ago by Prof. Seashore who has done considerable work along this line. He found that the greatest pressure which could be exerted by the thumb and finger grip during silence was 4 kg. When the *Giant's Motive from Rheingold* was played the grip was increased to 4.5 kg. The *Slumber Motive* from the *Walkurie* reduced the power to 3·24 kg. Music also tends to reduce or delay fatigue and consequently increase muscular endurance.

In 1887 Lombard observed the reinforcement of the knee caused by music, while making a general experimental investigation of the variation of the knee-jerk in relation to the activity of the central nervous system. The apparatus consisted of a hammer suspended on its axis through the handle falling like a pendulum so that the force of the blow could be regulated, and a rod connected with the foot sliding in the groove off a wheel, and equipped with a needle which recorded the extent of movement on a blackened surface. His observations may be summarized as follows :

CONDITIONS	KNEE JERKS	AVERAGE
Silence	25 Experiments.	32 mm.
Music of a passing band.	60, 71, 74, 60, 65.	65 mm.
Maryland, My Maryland.	62, 76, 74, 71, 66, 64, 59.	64·7 mm.
Drum Corps.	48, 55, 51, 55, 53, 49, 52.	51·8 mm.

The amplitude of the knee-jerk,

therefore seemed to vary distinctly with the intensity of the auditory stimulus. There was an increase and a decline in the extent of the knee-jerks as the music approached and receded. In a subsequent experiment to test the effect of music on the knee-jerk, an air was played on a piano in an adjoining room. The average knee-jerk at 7 P.M. was 32 mm.; at 11 P.M. it was 29 mm.; so that at 10—30, at the time of the experiment the "normal" knee-jerk probably would have been about 30 mm.

A more complete table of the conditions of this experiment is the following. The melody was Beethoven's Funeral March and its various modes and their influence on the knee-jerk were variable as is to be seen from the table:

STIMULUS	KNEE JERKS	AVERAGE
Beethoven's Funeral March.	82, 104, 96, 104, 99, 108, 95, 106, 118, 117, 90, 113, 119, 98, 100, 124, 108, 112.	105 mm.
Interval of quiet.	83, 90, 90, 90, 56, 82, 59, 75, 50.	74 mm.
Soft music.	52, 63, 47, 50, 55.	53'4 mm.
Deeper passage.	66, 73, 58, 78, 70, 86, 77, 87.	74'3 mm.
Soft.	66, 43, 59, 62, 71, 68, 51, 79, 86, 86.	60'4 mm.
More thrilling.	79, 86, 86.	83'6 mm.
Varied and softer.	58, 57, 79, 64, 47.	61'6 mm.
Quiet after 15 minutes.	25 experiments.	29'0 mm.

From these few brief essays it will be seen that music exerts a very profound influence on almost every bodily function. It is a potent factor to be considered from the view-point of health. There is scarcely any doubt at all that music plays a very important part in the problem of health.

WHY DOES CONSUMPTION RUN IN FAMILIES? *

BY

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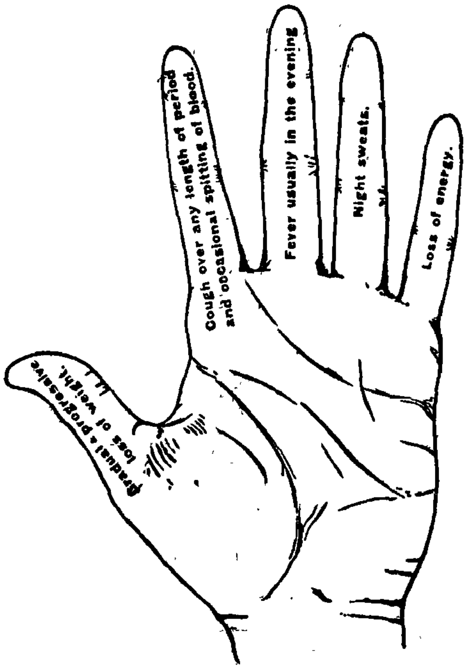
It is common knowledge that consumption often attacks a number of members of the same family and is sometimes observed to pass from generation to generation in the same family so much so that it has been popularly considered that heredity plays a very important part in the causation of the disease.

What are the factors concerned in this so-called hereditary transmission of the disease?. Is the infection carried to the foetus from the mother as in the case of syphilis? Or is it a constitutional or tissue characteristic that is handed down to the offspring by which the latter falls a victim to tuberculosis? Or is it due to a house infection which is communicated to all the members of the same family living under the same roof? Or are there any other causes that can explain the marked incidence of the disease in certain families?.

Epidemiological and pathological evidence goes to show that tuberculosis

* Being the fifth of the series of Radio lecturers delivered last year and specially sent to Health for publication.

is never transmitted to the embryo from the mother through the foetal circulation. There are occasional instances when the placenta or after-birth has been known to have tuberculous disease; but no authentic instance has been recorded of the new-born baby suffering from tuberculosis. The mother may be suffering from an advanced stage of consumption during pregnancy and at child birth and yet the baby is always born non-tuberculous. This fact by itself is enough to prove that the



Prevention of Tuberculosis. On appearance of any of the above signs or symptoms, consult a doctor.

infection is not conveyed to the child in the womb. It is therefore evident that infection takes place after the child is born. The newly born child has no natural resistance against tuberculosis and the first contact with infection especially from its own mother who has to handle it and nurse it sows the seed of tuberculosis from which a large number of infants die within the first two years of life. The mortality from tuberculosis is in fact known to be very high amongst infants, much less amongst children between the second and fifteenth year, and increasing again in adult life, being very high between the 15th and the 35th year of life.

It is not unlikely that there is a tissue susceptibility or constitutional weakness in certain families whereby they have a larger incidence of the disease and a higher mortality than amongst the general population, but the fact that our knowledge of the prevention of the disease has so far advanced that by the adoption of preventive measures, the most resistant children have been reared up out of highly tuberculous families seems to show that it is more the general surroundings, habits, food &c. that are responsible for the so-called familial predisposition than actual heredity. By the Grancher system of France whereby babies born of tuberculous mothers are segregated immediately after birth and handed over to the care of healthy families in the country, it has been unmistakably proved that tuberculosis practically never attacks such segregated children, whereas children allowed to remain with tuberculous mothers contract the infection in very large numbers and succumb to the disease. The Grancher system has proved that infection is not conveyed to the foetus through the maternal circulation and a constitutional or tissue susceptibility plays an unimportant part in the hereditary predisposition to tuberculosis.

It is thus more likely that the so-called hereditary tissue susceptibility is the result of a number of factors including the food, habits and environ-

ments that are common to all members of the same family. It is known that in many highly tuberculous families there is some common nutritional defect due mostly to the faulty feeding of infancy, especially the use of artificial foods. Fresh natural cow's milk and mother's milk which constitute the ideal food for the infant are in some families substituted by artificial foods or by rice especially the polished rice from the mills. It is not unlikely that the intensive rice feeding of babies and children of the west coast of this presidency is responsible for the apparently larger incidence of tuberculosis on the west coast. The better constitution, strength and physique of the Punjabi with his nutritious diet of wheat and dhall can be contrasted with the poor physique and sickly nature of the Madrasi who is a rice-eater. It has also been said that consumption is more prevalent in Madras than in the Punjab. The history of different countries also shows that the nations who have plenty of good and nourishing food to eat have much less of tuberculosis than those as in India, who are poor and cannot afford to live on a full and nourishing diet.

Recent epidemiological evidence and statistics in modern countries seem to show that amongst persons suffering from active tuberculosis, there are fewer ones with a family history than those without a family history of tuberculosis. In other words, there are more cases of tuberculosis amongst children of non-tuberculous parents than amongst children of tuberculous parents. This puzzling fact may be due to the important reason that tuberculous parents have bestowed special care on their children for fear of their catching the disease from them, whereas when the parents were healthy, no special attention has been devoted to the upbringing of the children under the popular belief that children of healthy parents cannot contract tuberculosis. Actual experience has proved otherwise and a large number of consumptives give no family history of tuberculosis.

Whilst it has no doubt been acknowledged that many cases of tuberculosis often occur in the same family due presumably to infection from a common source *i.e.* one or more open cases in the house and to identical conditions of food and environments governing the life of the family, it is very doubtful if tuberculosis is a truly hereditary disease. If that were so, many communities ought to have been wiped off by now. On the other hand, as a result of early detection and notification together with the adoption of measures for preventing the development of the disease after infection, tuberculosis has been known to decrease in many modern countries.

It can therefore be said that tuberculosis is a disease of faulty nutrition and unhealthy living and in so far as such defects often run in families, the disease is found to affect many members of the same family. If such unhealthy environments be mended and errors of living corrected, there is no doubt that heredity could not play any important part in the incidence of tuberculosis and it is to a great extent within the power of individuals in tuberculous families to ward off the disease by proper attention to food and habits, besides due precautions in warding off infection by the proper destruction of the sputum and discharges of the affected members of the family.

HILL STATIONS.

BY

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THE hill stations are looked upon as the best places for change both by the rich and middle classes of people, healthy and the sickly. There are hill stations in every district, besides the popular ones as Ootacamund, Darjeeling, Simla and others of all-India fame. The main features in the climate of the hill stations are :—

1. Lower temperature than in the plains, the cold increasing with the elevation to the sea-level. 2. Diminished atmospheric pressure with plenty of pure air and ozone in proportion to the height. 3. Increased moisture in the air with plenty of rainfall during the season. 4. Luxuriant vegetation and fine scenery. 5. Strong winds.

Generally in the hill stations, the summer lasts from April to June. The temperature is 10 to 20 degrees cooler than in the plains and the climate is very bracing. This is the time when the rich and middle classes of people resort to such places to escape from the burning heat of the plains. The government of every province moves to the hills and with the government their clerical staff, almost all the Europeans, most of the Zamindars and rich merchants and their paraphernalia.

From health point of view, the resort to hill stations is recommended in (1) cases of break-down arising from over-work and excessive heat of the plains. (2) Convalescents from any acute illness with only general weakness and without any organic trouble. (3) Persons suffering from dyspepsia, biliousness, loss of appetite and indigestion due to over-work and heat of the plains. (4) Those suffering from chronic malaria and malarial cachexia without dysentery. (5) Some cases of Diarrhœa in children and young infants brought on by the hot weather in the plains. (6) Cases of skin diseases as boils, prickly heat, carbuncles &c. (7) Cases of surgical tuberculosis. The climate of high altitudes is most favourable for sun cure. The air and sunbaths can be obtained systematically and well only there,as the sun's rays only reach the low-lying plains after passing through the whole thickness of the atmosphere laden with dust, smoke and moisture. The sun cure exercises, especially in a good sanatorium conducted with great care, are useful in cases of articular rheumatism, arthritis of the knee and foot, peritonitis, intestinal tuberculosis and surgical Tuberculosis.

High altitudes sometimes bring on a great strain to the constitution. The suppressed action of the skin due to cold increases the activity of the kidneys; the extra exertion gives more work to the heart and the lungs have a strain by frequent deep respiration, the liver is congested and the dampness often gives rise to intestinal catarrh leading to diarrhœa and dysentery. Therefore a change to hill station is not suited to all people. It is wrong

to believe that the climate of hill stations is an all-round cure and a panacea for all diseases. There are many instances where such indiscriminate advice has done more harm than good. The poor patients have been ruined both financially and physically. The expense, botheration, trouble and disappointment are not worth the change. Persons suffering from any specific disease of any internal organ, those suffering from diarrhœa and dysentery, consumptives with high fever, hemoptysis &c, some forms of asthma, chronic bronchitis and emphysema and those suffering from gout, kidney or severe heart diseases should not resort to hill stations.

SNUFF, SNUFFERS, SNUFFING.

BY

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SNUFF according to the Oxford Dictionary is powdered tobacco, taken through the nose as a stimulant or sedative. I wonder whether any of the economic, social or health reformers has examined the economic and hygienic effects of snuffing. Whether snuff is a vital necessity for human existence, I know not. But I know this, that the country can save something by making the nose 'dry'.

Beginning snuffing as a fine art, thanks to the hospitality of the snuffing fraternity, one practises it as a habit, without spending, but always borrowing in the initial stages. It catches and creates a sensation peculiar to the nose which leads to craving. Now commences the beginning of spending. At first a pie worth of snuff in a leaf for some time; thereafter two pies worth in a plantain fibre leaf and when this period of probation has run out its course, three pies worth, in a tiny wooden, horn or metal box or Amrutanjan bottle, every day of the 365 days of the British calendar year or 366 days, when a leap year intervenes. The more well-to-do snuffers use silver *dabbies* of various patterns while the less well-to-do use various patterns of receptacles to carry the snuff in their coat-pockets, along with their purses, watches, fountain-pen and other odds and ends. The snuff receptacle is an indispensable accompaniment, while walking, talking, thinking, writing and even sleeping. A snuffer cannot walk in the streets without obliging at least half a dozen probationers, who after a boring self-introduction, stretch out their annoying right hand, silently, pointing the thumb and forefinger—a time-honoured and grotesque method of borrowing a pinch of snuff. In the midst of serious and interesting conversation among high-placed persons, the intrusion of probationary snuffers, not worth a pinch of snuff is a sight to see. Snuffing thinkers and writers think deep and write well in proportion to the number of times they snuff, while thinking or writing. A snuffing sleeper suddenly

jumps and searches for his snuff-box beneath his sleeping pillow, with all seriousness, draws in a violent pinch through his nose and falls sound asleep. A curious specimen of humanity!

The variety of modes of snuffing beggars description and can be described only by those who have seen snuffers snuffing. The facial contortions, the bodily convolutions, the reddish and watery eyes, the violent stuffing of this dark-brownish and pungent tobacco powder in the nostrils and the unseemly after-effects of these physical and muscular operations are too well known.

I am not as anxious to dwell at length on these aspects, as I am on the economic aspect. I shall begin by saying, that snuffers like God, (pardon the simile) are omnipresent. Men, women and boys snuff. More snuffs of the Madras variety, are coming in the field, with the increase in the snuffing population, and all snuff-dealers are carrying on a roaring business.

Making due allowances for borrowing and lending in snuff by the brotherhood of snuffers, you may take it, that on a modest assumption every ten in 100 men, 2 in 100 women, and 2 in 100 boys are addicted to snuffing in this presidency alone. (I am open to correction). Leaving alone the women, and taking the very modest estimate of half per cent of the males in India as the snuffing population, and computing the economic effect, with reference to the census of 1931, the result is as follows:

Total population	...	35,28,37,778.
Less Women	...	17,10,08,855.
Men	...	18,18,28,923.
Half per cent of men	...	9,09,145.
Cost of Snuff (again modestly estimated at 1 pie per head per diem.	...	9.09,145 pies per day.
Total cost for a year of 365 days	...	909145×365 pies. or Rs. 17,28,322-8-5

This is a very modest estimate of the waste caused by snuffing alone. When to this is added, the still greater waste occasioned by smoking and chewing tobacco the figures must run very high. Cannot this great waste be prevented, by economic and 'health' reformers by their combined efforts, by carring on propaganda against the use of tobacco in any form, and prescribing costless substitutes, if absolutely necessary for man's existence upon earth? This question is of equal importance to, if not greater importance than, temperence reform, and both must be tackled side by side, for the conservation of money and preservation of health of the nation, in these days of economic and health depression.

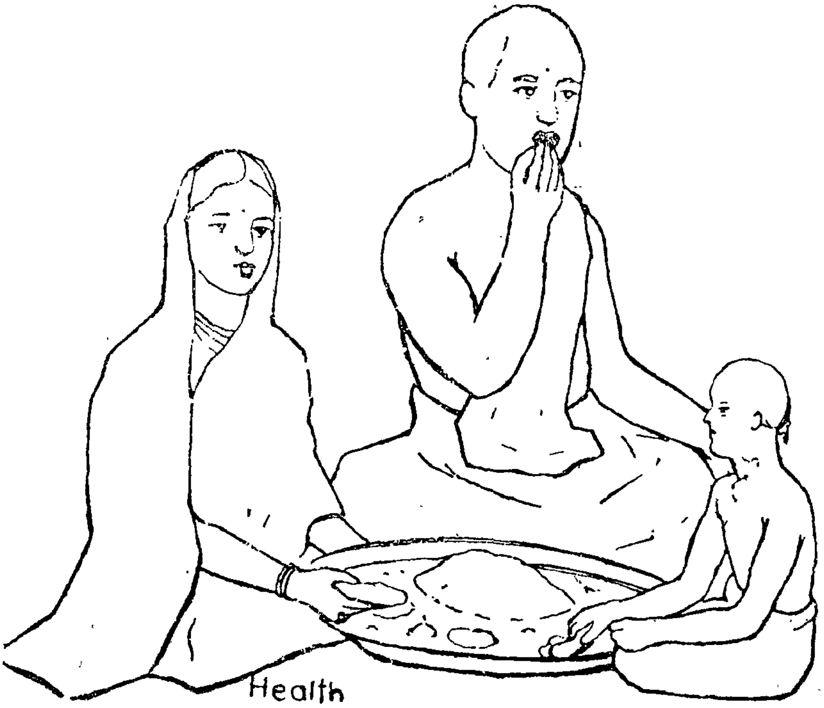
THE PROBLEM OF EATING.

Men and women everywhere are beginning to think seriously about the kind of material out of which they construct themselves, for they are learning that the kind of food used to-day will largely determine their physical welfare to-morrow.

In these days of epidemics of colds and influenza and of other diseases, it is futile to attempt to escape ill-health by "dodging microbes." Physical examination of a community of people reveals the fact that from eighty to ninety per cent. of healthy

people carry the germs of pneumonia in the mouth and throat, and that these germs are ever with us. Such examination, furthermore, shows that about ninety per cent. of our children become infected with the germs of tuberculosis before reaching the twelfth year, but a relatively small proportion develop the disease.

The question naturally arises, why are some persons so much more susceptible to the infection of these various scourges than are others? We cannot dodge these scourges that find their



Unhygienic method of eating, causing the spread of diseases.

Hygienic method of Eating.

way into all parts of the habitable world, even to the remote mountain hamlet and the lonely shepherds' cottage places far removed from the thoroughfares of travel. But our immunity to these and various diseases will depend largely upon the kind of material with which we keep our bodies fed. The question of immunity to diseases everywhere consists in the keeping of the fighting forces of the body so strong and vigorous that, in an encounter with disease, the battle may be fought and won for the body, while the individual is scarcely aware of the conflict:—'O D.'

ELIMINATION.

A MOST important point in maintaining the balance of health is excretion or elimination. It is most important that we eat the right kind of food in the right way, but it is just as important that we get rid of the waste bodies left behind after digestion is complete.

Whatever our diet may be, there always remains some refuse, or waste which the body cannot use. These substances are very poisonous, especially when flesh foods are used. They must therefore be got rid of from the body as quickly as possible, as if allowed to remain, they may cause serious diseases.

The body is equipped with special apparatus to get rid of its waste or ash. Such organs are the intestines, kidneys, liver and skin. If these do not function normally, the body soon becomes clogged, just as does a fire from which the ash is not removed. These organs are essential to life and therefore we need to guard them with care. Overeating, especially of protein foods such as meat fish, throws excessive work and strain on the excretory organs and in time causes them to become worn out or diseased. Other poisons, such as tea, coffee, and alcohol, have a very injurious effect upon these organs, and especially the kidneys.

Symptoms which show that the excretory system is not working properly are general lassitude, headache, insomnia, lack of appetite, and mental depression. A general clogging of the body machine also tends to pave the way for more serious diseases such as rheumatism, neuritis, sciatica, lumbago and *cancer*. Besides this it is also instrumental in hastening *old age*.

To ensure good elimination it is necessary to eat moderately of the right kind of food, preferably vegetarian, to exercise daily out of doors, to bathe frequently, to drink plenty of water, and to have the bowels function normally every day. If these points are watched, there should be little fear that the body is retaining its waste matter. A body free from impurities should glow with health just as a fire burns brightly when the ash is removed:—'O.D'.

BUGS THAT BOTHER US.

ACCORDING to the zoologists, bugs, or, more properly, insects, constitute by far the greater part of the whole animal world, and not only in numbers, but in actual bulk. And because of their incredible numbers, they are man's most dangerous enemies. In fact, there are those who doubt the ability of the human race to successfully cope with the rising hosts of insect pests that are menacing every phase of our agriculture in spite of the combined efforts of entomologists, chemists and practical agricultural experts.

And of all the bugs that bite and pester us, the common housefly is one of the worst. Any one who has ever visited Egypt, will find live evidence to support the Biblical story of the plague of flies which came down upon that country when Pharaoh refused to permit the Israelites to migrate. The flies are still there. A common spectacle in that country is a naked baby with pus running from its eyes and its eyelids black with flies getting loaded up with the infection to carry to other eyes. The *Scientific American* (August) tells some interesting new and old facts about the fly and other insect enemies which set forth in graphic colors the evils that threaten us from this source.

As a carrier of infections, the fly has no rival. It is known that it is an active agent in the transmission of at least thirty distinct diseases. Every year the fly kills nearly as many United States citizens as perished during the World War. The fly shares with its fellow scavenger, the oyster, the discredit of causing nearly all the cases of typhoid fever that occur annually in this country.

We quote as follows:

"Known for years as one of the filthiest things alive, the fly has been convicted as the carrier of at least thirty diseases. It contributes directly to the death of at least 75,000 persons annually by spreading disease. Flies are held responsible for eighty-five per cent of the typhoid cases in cities and ninety-five per cent in rural districts. They multiply with terrifying rapidity. In one season, from May first to September thirtieth, a female fly may produce nearly 5,598,720,000,000 offspring. One fly may carry as many as 6,000,000 germs. Its body and even its wings, apparently smooth and shining, are covered with small hairs and bristles which offer excellent lodging places for germs as it crawls over filth.

"The fly's eating habits and, in fact, every phase of its conduct are dirty and disgusting in the extreme. To soften its food so that it can be swallowed, the fly vomits upon it, leaving hosts of dangerous germs upon unconsumed portions of its meal. Flies will travel from one to thirty miles for food. At one feeding, they will eat half their weight in food and will gorge themselves in half a minute or less if not disturbed.

"The mosquito has been hated for generations because of its painful bite. Sixty kinds are found in the United States. Mosquitœs are condemned chiefly as carriers of malaria and dengue or breakbone fever which sometimes becomes epidemic in the southern states. The mosquito's principle

menace lies in the fact that it is likely to inject germs directly into the blood of its victim. The itching and swelling caused by its attack are largely due to a poison substance released during the biting to thin the blood so that the liquid can easily be swallowed by the mosquito.

"Cockroaches are the 'Methuselahs' of the insect world as they frequently live to be four years old. There are forty-three species but four are important as household pests. These filthy insects carry the germs of diphtheria, typhoid, dysentery, tonsillitis, leprosy, and malignant tumors. Next to the fly, the cockroach is the most dangerous as a carrier of disease.

"Moths devour some 250,000,000 dollars worth of textiles and other materials annually. They feed on animal fibres almost exclusively and are the housewife's constant enemy. Killing the miller moths does little good as the eggs usually have been laid before the moth flies. The larvæ which hatch from the eggs do the damage. They live and grow fat on furs and fabrics. Under favorable feeding conditions many devour wool, fur, and other animal fibres equal to about twelve times the weight of the miller. The use of effective chemicals applied under pressure and directly at the areas where the larvæ are at work, has proved especially helpful in combating the moth.

"Bedbugs carry dysentery, smallpox, typhus, anthrax, infantile paralysis, relapsing fever, bubonic plague, and leprosy. Their painful bites, vile odors, and menace as disease-spreaders make them especially obnoxious and dangerous, Bedbugs are so foul-smelling that birds will not touch them. Chemical sprays have proved most efficient in combating them.

"Ants and fleas are properly classed with the other 'public enemies' as devourers of materials and spreaders of disease. Fleas have been associated with animal diseases and with bubonic plague. There are 6000 different kinds of ants but four of them do the most damage—the tiny red variety, the small black ant, the carpenter, and the pavement ant. The timely and proper use of chemicals is proving especially effective in curbing them as large numbers of the insects can be reached at one time with such treatment.

"Interesting research lies back of the development of the 'chemical warfare' against insect pests. Scientists discovered a vulnerable spot in the household pests through their breathing apparatus, consisting essentially of exposed pores on each side of the insect's body. The chemical spray used, while harmless to man and animals, have the peculiar property of paralyzing the insect's breathing organs. The victims therefore quickly suffocate after coming in contact with the materials, usually applied as a fine mist from spray guns. Such chemical sprays are available for quick and easy use in the home.

"An essential ingredient in the most efficient sprays is the extract of a certain species of dried chrysanthemum flowers. The substance was discovered by accident. Near a bunch of wild flowers which had become withered were observed many dead insects. The matter was investigated by scientists who discovered the effect of this flower extract on the insects' breathing

apparatus. After further research, ways were found by which the substance could be properly mixed to form a dependable spray.

"The battle is far from won. It is estimated that there are from 200,000 to 1,000,000 kinds of insects in the world, thousands of them harmful to men. The world's insects far outweigh all the human beings, animals, reptiles, and birds put together."—*Good Health.*

MUSCLAR FATIGUE, MUSCLE STRAIN AND MUSCLE CRAMPS.

THE muscle is an energy-producing engine, and the sources for this energy are glycogen and phosphagen. During exercise the former is changed into lactic acid and the latter is broken down into creatinin and phosphoric acid. The accumulation and insufficient removal of the decomposition products of muscular activity lead at first to a transient condition of increased irritability, followed by lessened irritability of the muscle cells. The latter state of more or less complete loss of muscular irritability and contractability is called 'fatigue'. The interval for the fatigued muscle to regain the full capacity to perform its work depends upon the age of the individual and condition of 'training'. If the fatigue-creating muscles overflow into the general circulation, they produce symptoms of general fatigue. The first effect is the depression of other muscles, including the muscles of the heart and blood-vessels. This in turn leads to a diminution in circulation and oxidation which affect the nerve cells and the central nervous system. As a result, there is an impairment of muscular power.

If stimulation of the muscle is continued after the state of fatigue is reached, the muscle is apt to be damaged and 'muscular strain' results. After the muscle has used up all its reserve material, less suitable protein material of its cells may be called upon to produce energy and chemical balance. This involves the loss of nitrogen and if this destructive process is allowed to go beyond a certain limit, certain changes accompanied by an inflammatory reaction, œdema and stiffness result in the muscles. These changes in the muscle substance produced by extreme strain seem to be allied to the changes seen in post-mortem rigor. This muscular strain has a tendency to lead to cramps.

By the term 'muscular cramps', we understand involuntary painful spasms of muscles. They are usually brought about by sudden, exaggerated or wrongly directed impulses when a muscle action does not meet the anticipated amount of resistance or is not checked by the controlling antogonistic muscle, as is normally the case.

The prevention of the above mentioned conditions is possible only to a limited degree. The training work should be started with small demands and increased gradually. Sufficient rest periods must be interspersed. The muscles should not be exercised until they have fully recuperated.

DREAMS.

From the medical point of view, dreams in the vast majority of cases have little or no significance. But when they are of an unpleasant nature, and occur night after night, it is well to have a doctor's advice. They may, in this case, be symptomatic of disease of the brain, heart, or some other part of the body.

It is quite natural for most people in good health to dream frequently while others dream very rarely. The cause of this difference is not well understood. Dreams result from partial wakefulness. Some "centres" of the brain are asleep and inactive; others are more or less wakeful and active. Usually the intellect and the will are soundly asleep, the imagination and the memory partially awake. This explains the strange character of our dreams. Memories of the past become interwoven with incidents of a day or two before, and with these are intermingled sensations from the surface of the body caused by pressure of the bedclothes, draughts, itching of the skin, etc., as well as sensations arising in the stomach, intestine, and other organs. When awake, and able to use our judgment, we can separate all these impressions, and put them in their proper place. When the judgment is asleep they are blended into odd and marvellous pictures.

It is said that all dreams are based on incidents of a day or two before, being often coloured by old memories, especially those of early love affairs.

The character of a dream depends very much on the condition of the body. Thus indigestion and a loaded stomach or intestine give rise to dreams in which there are depression, anxiety, fear, and often a sensation of falling from a height. A painful spot in any part of the body may suggest ideas of torture. Oppression of the chest sometimes produces dreams, in which one has a feeling of suffocation fear, and helplessness.

Outside agencies are equally operative. Loud noises may originate dreams of tumult. The bite of a flea may suggest a stab with the knife, and the buzzing of a fly a storm.

We dream most in childhood, that period of life when the imagination is active and the nervous system sensitive and unstable.

When dreams are very frequent, and particularly when they are unpleasant, a search for the cause should be made. Most often this will be found to be some error in diet. Usually the error consists in eating indigestible food, or over-loading the stomach late at night. In the case of children it may be the swallowing of fruit skins, eating currant cake or pudding (dried currents are almost wholly indigestible), eating oatmeal porridge perhaps not well cooked, etc. When the digestion is not strong, drinking tea or coffee at night may produce exciting dreams. On the other hand, both in children and adults, the dreaming may be due to going to bed with an empty stomach. A substantial meal should be taken within two and a half hours of bedtime, or failing that, something light, such as milk and biscuits, milk pudding, etc., half an hour or an hour before retiring.

When the bowels are constipated, dreaming is often of a very distressing nature. A dose of castor oil or cascara sagrada will usually set matters right.

Nervous excitement and mental overwork are frequently the cause of dreaming and disturbed sleep. In children especially, they should be avoided. Children should have no lessons to learn within a couple of hours of going to bed. They should not be told ghost stories or terrifying tales, and young children should not be allowed to look at pictures of wild animals or anything that can be woven into a dream of horror.

A scolding or punishment should *never be administered shortly before* bedtime (or at any other time when it can be possibly avoided); the child should not be sent asleep with fear of punishment or its mother's anger next day. A good rule to observe is that a child should never go to bed unhappy. For those who dream much, the chief measures are, to correct indigestion and constipation, to avoid heavy meals at bedtime, not to go to bed with an empty stomach, not to overtax the intellect or emotions, and to take plenty of open air exercise (but not to the point of fatigue) during the day.

Occasionally dreams may indicate disease, and call for medical treatment. The heart and the brain when disordered may give rise to very unpleasant dreams. Nervous irritability is another common cause, and in this case a short course of the bromides will probably effect a cure.

Sleep, of course, is not so sound and refreshing as it should be when dreams disturb it. Therefore, although ordinarily of no importance, dreams when persistent should always be attended to.

HEALTH TIT-BITS.

Late marriage and maternity mortality:—Dr. C. O. McCormick, M.D., Indianapolis, in the course of a discussion of a paper 'Why maternal mortality?', read before the Indianapolis Medical Society Nov. 29, 1932 by Dr. H. F. Beckman, and published in 'Medical Arts' observes: "Our "text-books define 'nubility', the age most favourable for a woman to bear a child as twenty-three years. Within the last year, a writer reports his experience covering several thousand cases and places this age at eighteen years. My own experience would lean toward the latter age. It is too frequently demonstrated that a girl of sixteen can deliver a baby and recover from a pregnancy more easily than a woman of thirty." He agrees with Dr. Beckman in his statement that late marriage and postponed first pregnancy are direct factors in the the production of the present-day maternal mortality and concludes by saying that so far as late marriages and postponed first pregnancies are concerned, I see but little that the medical profession can do about it other than recognise the mortality among this group and improve an obstetric skill to meet it".

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Pre-natal Care and Maternal Mortality:—The same doctor stresses the impor-

tance of pre-natal care in the reduction of maternal mortality and says, "There are two important complications which may occur during the pre-natal period, eclampsia and placenta prævia. Pre-natal supervision would well justify itself if it did nothing more than detect these two conditions, in that it reduces the maternal mortality of the former over 90% and the latter over 50%. Care only at the time of delivery cannot cope with these results. Eclamptic patients are rarely seen following pre-natal care. The success of pre-natal care in handling these and the numerous other complications such as cardiac, nephritic, tubercular, mal-presentation, disproportion, mal-nutrition, syphilis etc., has convinced me that this service is more important in reducing maternal mortality than is delivery case. That is to say, there will be fewer mothers lost among one thousand unselected pregnancy cases given efficient and adequate pre-natal care and no care at the time of delivery than among one thousand similar cases given no pre-natal care but adequate and efficient care at the time of delivery".

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First principles of eating:—

1. "Moderation, Simplification and Mastication. Moderation favours the development of a recurring animal appetite, better called normal hunger. It teaches us *when* to eat.

Simplification separates the kinds of foods and serves them with their natural flavours. It teaches us *what* to eat.

Mastication facilitates digestion by disintegrating and preparing the food for the stomach. It teaches us *how* to eat.

2. Occasional abstinence from a want of appetite is more conductive to a long and vigorous long age than the habit of eating without an appetite for fear of missing or slipping a meal.

3. Chewing one kind of food at a time is the simplest way of preventing a mixing of interfering flavors or of incompatible foods.

4. Choose and chew! When you can't choose, chew! When you can't chew, choose!

5. Excess and error in our eating habits require reforms as much as do the disastrous and complicated business methods of recent times. The results of such eating are less sensational and less suicidal, but they shorten our lives none the less.

6. The physician in recommending a diet is too much concerned with the addition and subtraction of calories; the cook is too much concerned with the multiplication and division of flavors; the eater is too unconcerned.

7. Health is more than strength; longevity is more than senility; disease is more than death".

* * *

The Wise Men.

The wisest men that ever you knew
Have never dreamed it treason
To rest a bit-and jest a bit,
And balance up their reason;
To laugh a bit-and chaff a bit,
And joke a bit in season.

LAUGHING GAS.

—*The Illinois Medical Journal.*

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Red and Green Coverings prevent Rancidity in Foods:—It has been discovered by the Department of Agriculture that certain wave-lengths of light produce rancidity in oily foods. As a result of this dis-

covery, special red and green wrappers and bottles are likely to be used in the packaging of oils, mayonnaise, butter, etc., to prevent rancidity. According to the *Science News Letter*, the keeping quality of such foods is found to be greatly enhanced by the use of packages that screen out the kind of light that causes spoilage. It was found that the use of a green filter which approximates the chlorophyll covering of the green leaf, and a red filter that absorbs practically all the light, prevents or delays the oxidation and rancidity of the oily portion of the material tested.—*Good Health.*

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Color Preferences of the Mosquito:—The mosquito seems to be definitely attracted or repulsed by different colors, and a knowledge of its likes and dislikes may be of use in planning the summer wardrobe. A scientific investigator has assured the public that mosquitoes like sober hues and prefer to bite men wearing dark clothes. " A tent lined with navy blue," we are told, " proved a lodestar to Palestine mosquitoes, and no one could sleep in it. The men of the United States Army had to be given light shirts to replace their regulation navy blue ones. An experiment spread over seventeen days showed that mosquitoes kept in a gauze tent where there were a number of colored boxes, would not alight on the yellow one. Only two settled on the white one, while one hundred and eight plumped for navy blue, ninety for dark red, and eighty-one for brown."—*Good Health.*

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Apples Also Keep Dentist Away—Apples, not only for the purpose of keeping the doctor away or relieving the unemployed, but as a preventive of tooth decay, were recommended at the sixth annual better dentistry meeting of the First and Second Dental District Societies at the Pennsylvania Hotel.

Apples have a mouth-cleaning quality that no other fruit possesses, and taken after meals they have the same effect as a tooth-brush in cleaning the teeth, with the added advantage that the acid content, aside from its nutritive value, is of assistance in promoting the flow of saliva in the mouth which is also beneficial to the teeth.—DR. JOHN T. HANKS, *Dent. Surv.*, January, 1931.—*American Medical Journal.*

Acknowledgment.

We are grateful to the Director of Public Instruction, Poona, for having included our 'Health' and 'Arogya Chandrika (Canarese Health) in the list of newspapers and periodicals sanctioned for use in Government, Aided, and Recognised Primary and Secondary schools and training institutions in the Bombay Presidency—(vide) the Bombay Government Gazette. Part I 16th March 1933) and we trust the institutions will benefit largely by reading these journals. (Ed: Health and Arogya Chandrika.)